Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of Spectrum Policy Task Force Seeks Public Comment on Issues Related to Commission's Spectrum Policies

ET Docket No. 02-135

Comments of Nortel Networks

INTRODUCTION

Nortel Networks ("Nortel") is a dwide leader in providing wireless solutions, an active participant in the industry standards setting bodies and a frequent commenter on spectrum matters. Nortel's wireless technology maximizes the use of existing spectrum and hardware resources to accommodate subscriber growth and reduce operational expenditures. It has been deployed in more than 65 countries around the world.

Nortel Networks has contributed extensively to the wireless industry since the early days of second-generation standardization for GSM in Europe, and TDMA and CDMA in North America. At the international level, Nortel Networks was an early

supporter of the development of third generation wireless standards in both ITU-R (Radiocommunication Sector) and ITU-T (Telecommunication Standardization Sector).

Nortel Networks chairs the ITU-T Special Study Group on IMT-2000 and is an active contributor in TIA, 3GPP and 3GPP2. Nortel's technology is in 11 of the top 20 global operators' 3G networks. Nortel is a significant presence in the U.S. wireless market and consequently has a significant stake in the spectrum issues currently being addressed in this proceeding by the Commission's Spectrum Task Force.

Nortel Networks is very pleased to have the opportunity to participate in this proceeding and has chosen to provide answers to those questions where its experience and expertise can add the most value to the task force's deliberations. The questions from the public notice are repeated and the question answered.

MARKET-ORIENTED ALLOCATION AND ASSIGNMENT POLICIES

6. How can the Commission better facilitate the experimentation, innovation and development of new spectrum-based technologies and services through, for example, changes in its experimental licensing rules, increased use of developmental authorizations or promoting demonstration projects?

In order to promote the competitiveness of U.S. manufacturers in international markets, Nortel Networks recommends that the Commission adopt a more relaxed policy towards experimental licensing or developmental authorizations for product experimentation, verification and testing. These authorizations would enable development of equipment for overseas sales, where the regulations may not correspond with those in the U.S. With the divergence of U.S. frequency usage in some bands from frequency usage in other parts of the world, manufacturers may be unable to perform the necessary live-air experimentation required to develop or improve products for markets outside of the U.S. Those products must be verified to be in full compliance with the

intended market's regulations and need to be tested to those rules and standards. Under current constraints, U.S. manufacturers may be limited in product development and verification, thereby inhibiting their ability to compete in the international marketplace.

INTERFERENCE PROTECTION

7. Are new definitions of "interference" and "harmful interference" needed? If so, how should these terms be defined?

Nortel urges the Commission to use great caution in adopting any changes to the general definition of "interference" or to develop a new definition of "harmful interference." These definitions cannot be developed without a careful understanding of each service being provided, and would need frequent revision as technology improves the capabilities of a service. Definitions of harmful and non-harmful interference cannot be based solely on historical values of technical radio parameters.

The existing ITU and FCC definitions of interference[1] and harmful interference[2] are adequate. These definitions are generic in nature and their application requires consideration of the particular aspects of each specific case. The FCC definitions of "permissible interference" and "acceptable interference" already point to the non-regulatory mechanisms that should be used to manage interference. If the Commission were to re-define harmful interference it could imply a quantitative definition of non-harmful (i.e. "safe") interference, and some services would suffer significantly from this. The implied quantitative definition would inhibit the wireless industry, because such a *de facto* definition of "safe" interference would stifle innovation, negate any improvement in product performance, and reduce gains in customer satisfaction.

[1] See Article 1.166 of the ITU Radio Regulations and Section 2.1 of the FCC Rules.
[2] See 1003 in the Annex to the ITU Constitution, Article 1.169 of the ITU Radio Regulations, and Sections 2.1 and 21.2 of the FCC Rules.

It is important to understand in this discussion that "harmful interference" is generally a service definition rather than a strict, or simple, technical definition. The victim service involves both the radio system and the user**,** who together involve much more than just the individual technical radio links. The user's perception of service is, for example, conditioned by past performance. A reduction in the service quality, even if it is the result of interference that might not be technically classified as harmful according to some specification, will still result in perceived harmful interference by the user and therefore by the service provider. The concept of harmful interference should thus be dictated by the most demanding service offered. As the service is continually evolving through improved technology, a technical definition of harmful interference would necessarily be ever-changing.

The effects of interference impact a victim radio system in many ways. These effects will frequently be a degradation in system parameters rather than complete system failure. They may include reduced system capacity, additional delays in access, lower through-put (i.e. lower data rates), shorter battery life, and more distortion or errors in the received signals. While a delay may be simply an annoyance for some users in some services, radio blocking or unusual delays in access may affect control operations severely and result in loss of life or property. Similarly, loss of system capacity or coverage area may result in reduced operator service revenues.

The definition of a level of "harmful" interference could naturally lead to the creation of a definition of "acceptable" interference as anything less than harmful. Such a definition would have the effect of curtailing innovation in the victim system. Technical advances that might permit the service to be extended or to exceed initial

expectations would likely be precluded by the promulgated definition of levels of acceptable (non-harmful) interference. Innovations that, for example, improve the receiver performance, would also increase the sensitivity to interference and could be nullified by the imposition of "acceptable" levels of interference much higher than the improved sensitivity.

A hypothetical assessment of harmful interference must include anything that the user perceives as degrading their past, present or future use (including cost) of the services compared to what they are accustomed to. It is not easy to define this technically in terms of simple radio link parameters. We strongly urge the Commission not to develop further the harmful interference definitions in its rules. We also urge the Commission to retain consistency with international definitions.

11. Does defining power limits and other measures in the Commission's rules designed to protect against harmful interference affect innovation?

Nortel supports the definition of transmitter power limits and other transmitter measures in the Commission's rules designed to protect against harmful interference. Such limits set a stable radio system environment, and thereby facilitate innovation.

Nortel believes that, given the large usage of the radio spectrum for many diverse systems today, it is evident that innovation has been suitably encouraged by the existing rules. Indeed, by providing a well-defined environment for radio system operation, inventors have been encouraged to develop new systems both for new services and techniques and also the means to conform effectively to the regulatory limits. Such innovation can be done safely with the knowledge that an innovative system is not likely to impact existing systems.

Power, broadcast area and radiation limits are the fundamental means to control interference between radio systems. However they are not the only techniques. Many radio systems operating today use techniques in addition to these to control interference. These include time division separation, code division separation and the use of directional or polarized antennas. Signal processing techniques can also be used at the receiver to suppress interference. However, these schemes are usually only cost effective when used to control intra-system, or internal system interference. Their general use for controlling unknown interference from other outside or competing systems is technically difficult and expensive.

14. Should the Commission consider developing receiver standards or guidelines for each radio service that would be used in judging harmful interference?

For example, should such standards or guidelines aim to protect receivers that meet or exceed the standards or guidelines, but allow users to use less robust receivers at their own risk? If so,

a. What criteria should be considered in drafting these standards/guidelines?

b. How should the Commission consider protecting legacy receivers?

c. Should these standards/guidelines differ among the various radio services?

Nortel Networks believes that the Commission should not develop receiver sensitivity standards or guidelines that would be used in judging harmful interference. Nortel encourages the Commission to consider promoting new and innovative techniques for controlling interference. In contrast with our position against interference standards within the rules, Nortel encourages the Commission to consider receiver regulations to limit spurious emissions and to reduce susceptibility to emissions in adjacent bands for

new receivers. Such techniques would be used in addition to the limits on power and area and should not replace or supercede the fundamental limits.

The Commission's rules for protection against interference are largely predicated upon definitions of power, broadcast area and other technical radio radiation limits. These limits have been extensively developed to provide the suitable level of interference protection most radio systems enjoy today.

Traditionally the Commission has not typically regulated receivers. As a general consideration there are three major aspects of a receiver that might be regulated.

(i) The reception performance of the receiver for its intended service should not be regulated, but rather left to standards bodies.

(ii) As radio receivers are sometimes, unintentionally, emitters of radiation, these emissions should be regulated.

(iii) As radio receivers are sometimes, unintentionally, sensitive to radio signals that are outside of their intended primary reception band, this "out-of-band" susceptibility should be regulated.

Over time, developments in technology frequently permit improved performance at reduced cost and so, quite naturally, improvements in receiver performance happen over the life of a system. The definition of receiver performance standards would negate this natural progression of technology.

Many of the communications systems today are built to comply with industry interoperability standards, and international rules and specifications. These are key to the ability of customers to have security of supply and to facilitate uniform services across the nation as well as globally. Many of these industry standards specify minimum

receiver performance including sensitivity levels and equivalent error rates. Typically, these performance requirements are specified for the receivers in the mobile units. Such definitions of a minimum sensitivity level are necessary to ensure that all mobile units will operate over a minimum link range and so permit the planning of deployments. However, these requirements set the minimum level of performance, not the best-in-class, and there are often other system considerations that lead to the application of superior performance. For example, handsets with increased sensitivity may be preferable because they need less frequent handovers and are less sensitive to dropped calls in shadowed environments. In many systems, increased receiver sensitivity (beyond specified minimum performance levels) is a significant market differentiator for products.

As additional receiver sensitivity often translates into increased system range or capacity resulting in increased spectral efficiency, such improved performance can lead to significant savings for equipment operators. The imposition of *de facto* minimum regulated receiver performance limits tied to the level of "harmful" interference by the Commission would be counter-productive, would negate these competitive advantages of the market environment and would stifle innovation. The definition of a level of "harmful interference" would stagnate the service and system performance at a level fixed by the original view of the service and its technology when the level of harmful interference was defined.

For aspects of receiver performance relating to unintentional emissions and susceptibility to unwanted signals, Nortel encourages the Commission to consider setting suitable standards for new devices. Keeping low levels of unwanted emissions would help to protect other systems from unwanted interference, and reduced susceptibility to

unwanted signals would also permit greater flexibility in operation of services in adjacent bands.

Modern communications system standards frequently specify both in-band and out-of-band emissions levels to provide an assured level of system capacity and range. Unwanted emissions of receivers is one of the factors that sets the noise floor and limits the performance of radio systems operating in nearby bands. Having these emissions limited to suitable levels would help limit intersystem interference.

Similarly, limiting a receiver's response to unwanted out-of-band signals also provides additional interference protection. These limits typically must include both the receiver's linear range (i.e. susceptibility to strong out-of-band signals) as well as the response to "images" introduced by superhetrodyne effects. In the traditional process of spectrum planning, services were often deliberately separated in bands to avoid intersystem non-linear and image-frequency problems with receivers. Such planning is more difficult today with the crowded usage of the spectrum, the additional services and the frequent operation of transmitters and receivers in close proximity. Having receiver susceptibility regulations would provide more flexibility in placing services in the spectrum without the danger of "surprise" incompatibilities due to unexpected, unwanted, receiver sensitivities.

SPECTRAL EFFICIENCY

17. What mechanisms or policies might be considered as a means of promoting a proper level of spectral efficiency either through regulatory mandates or economic incentives? Are there mechanisms that other countries use that should be applied in the United States as well?

Nortel opposes the use of technical spectral efficiency measures for the regulation of radio systems. The economic pressures of the marketplace are generally effective in

promoting suitable technical efficiency in radio systems and services. Nortel recommends that the Commission improve the efficiency of the usage of the spectrum by adjusting its rules to facilitate the development, evolution and operation of new systems using advanced technology. In general, "spectral efficiency" is not absolute in a simple technical sense, but rather emphasis should be placed on "efficient use of the spectrum." Spectral efficiency and efficient use of the spectrum are not the same. "Spectral efficiency" is simply a measure of a radio link's parameters, while a measure of the "efficient use of the spectrum" requires the analysis of the radio system, the service, costs and operating conditions.

There are two areas where the Commission's rules might be revised to facilitate more efficient use of the spectrum, namely, flexibility in the innovation of new services/technologies for existing services and enabling pooling of spectrum. Some aspects of the rules limit the spectrum user's ability to improve their system efficiency through innovation in services or the introduction of new technology. The Commission may wish to consider amending rules in cases where the introduction of new technology is inhibited. Changes in rules (technical or service related) that would facilitate the aggregation of traffic or the pooling of spectrum would be more effective than the imposition of new regulations on the spectral efficiency of radio links. Nortel Networks encourages policies that allow traffic and spectrum aggregation for the purposes of improving the efficient use of the spectrum. For example, increases in the efficient use of the spectrum may be achieved through the aggregation of traffic. The more traffic that can be combined to utilize a spectrum block, the more efficient the use of that spectrum.

18. Do any existing Commission rules inhibit efficient use of the spectrum? If so, how should they be changed?

Nortel Networks believes that some Commission rules inhibit the efficient use of the spectrum. For historical reasons, the Commission's rules have tended to assign frequency spectrum in small slivers depending on changing priorities. This has resulted in a fragmentation of the spectrum, which is not conducive to the deployment of new, more spectrally efficient systems. Any new system is challenged by the necessity to find new spectrum. These slivers of spectrum also inhibit the efficiency gains possible through aggregation of larger amounts of traffic in wider-bandwidth systems. The use of global radio system standards also significantly fosters the efficient use of the spectrum through both the ability to aggregate larger amounts of traffic and through concentration of innovation to improve system performance and lower costs. Slivers of spectrum do not attract the international resources for industrial innovation to focus on the improvements necessary for economies of scale and large-scale manufacturing. The Commission should try to avoid narrow U.S. specific assignments.

This issue is complicated by a regulatory framework which requires significant technical investment at the inception and initial implementation stage of emerging services. The creation of regulatory limits and the testing and qualification of systems capable of coexistence with established services in nearby bands require the expenditure of resources. These investments must then be recouped over the life of the radio service in question. This up-front investment becomes an impediment to further innovation within the service category if the initial service rules are too rigid. These rules could lead to uneconomic attempts to improve spectral efficiency for legacy services.

Assignment of frequency bands in sufficiently large blocks is needed to allow the rejuvenation of the technology for the same or similar applications. Likewise, flexible

regulatory systems which encourage incumbent service owners to upgrade to more spectrally efficient technology over time could potentially expand the available capacity within existing, predefined frequency bands, or encourage spectrum owners to relinquish licenses to more valuable services.

Nortel recommends that the Commission seek to improve the efficient use of the spectrum by adjusting its rules to facilitate the development and evolution of new systems using advanced technology. Such innovations may occur without the imposition of strict rules in the regulations. It is desirable that any new rules would be flexible enough to:

(i) Foster technological innovation in the use of spectrum,

(ii) Enable services to develop and support new techniques for coding traffic, including voice, data and video services, and

(iii) Permit the aggregation of service spectrum blocks to enable larger amounts of traffic to be combined into groups for more efficient packing.

19. What new technologies exist that, if deployed, could improve spectral efficiencies and utilization? What are the barriers to their deployment?

There are new and emerging technologies that may offer more spectrally efficient solutions for some applications. However, they cannot be considered in isolation. There are many factors that need to be considered in improving a radio communication system, including international standards, cost, safety, health, capacity, complexity, and reliability.

The impediments to the deployment of new technologies are discussed in answer to Question 18: the non-availability of sufficiently large blocks of spectrum that would allow a timely evolution and re-deployment of technologies in the same parts of the

spectrum, recognizing the need to support both users of the old facilities and the new facilities. The creation of "transition" rules which create added flexibility during technology migration either within or between new band plans could reduce the impediment to both aggregation of available spectrum and the eventual return of spectrum from services that may no longer need their full block of spectrum due to upgraded systems and new technology.

Each service/application should have sufficient spectrum available to it so that there is space for new technologies to be developed and deployed while still supporting the previous generation of users. Over the life of the service, the traffic may shift as new and better technologies are introduced. The advantage of this approach is that the operator can adjust the timescale of evolution to suit the growth in business and may eliminate the "legacy users" problem which inhibits the introduction of new technologies. This suggests the allocation of bigger blocks of spectrum to services so that innovation can take place without additional regulation.

20. Should the Commission consider ways to quantify or benchmark spectral efficiency in a way that permits fair and meaningful comparisons of different radio services, and if so, how would such comparisons be used in formulating spectrum policy?

Nortel endorses "efficient use of spectrum." However, "spectral efficiency" should not be the basis for spectrum policy. While it is useful to have standard ways of measuring spectral efficiency, spectral efficiency should not be used for formulating spectrum policy because there are many other factors, possibly more important, that need to be considered. The application of technical metrics is only of limited value even when comparing equivalent services within a common spectral range. To give an example, the evaluation of candidate radio transmission technologies for IMT-2000 included "spectral

efficiency" as one of more than 160 elements for the evaluation (Recommendation ITU-R M.1225).

Technical measures of "spectral efficiency" may be calculated from the technical parameters of a radio system. These technical measures of "radio spectral efficiency" are not necessarily synonymous with "efficient use of the spectrum." Efficient usage involves considerations of the service being provided, the maturity of technology, the implementation, the traffic and the history of the service and its regulation.

The range of technical "spectral efficiency" can span in excess of six orders of magnitude depending on the service. Based on analysis, typical spectral efficiency metrics in various services may range, for example, from $3 * 10^{-6}$ bits/s/Hz for radio astronomy, $2* 10^{-4}$ bits/s/Hz for air traffic control, and around 2 bits/s/Hz for digital broadcasting and mobile radio. Thus, from a strictly numerical spectral efficiency perspective, the latter examples produce the "best" measure. Nortel believes that these metrics are inappropriate to judge or compare systems for "efficient use of spectrum." Nortel believes that all the example services are valuable and does not believe that the measures show that one system makes more efficient use of the spectrum than another.

Furthermore, raw spectral efficiency will likely improve as technologies evolve. For example, in the U.S., CDMA cellular technology has evolved from approximately 0.15 bits/s/Hz 5 years ago, to 0.27 bits/s/Hz today and is expected to rise in the near future to >1 bits/s/Hz.

Measures of efficient use of the spectrum must include factors for area covered, number of users served, re-use of the spectrum, link ranges, mobility, quality of service (delays, error rates), compatibility with other systems and, of course, cost and user

convenience. However, introducing these extra factors still does not enable fair and valid comparisons. Nortel discourages expenditure of Commission resources in an effort to quantify spectral efficiency parameters for purposes of regulating spectrum usage.

The efficiency of a system's use of spectrum varies over the life of the service and the maturity and evolution of the technology available. Therefore, the regulatory environment should promote the evolution of radio systems within the licensing framework, taking into account life cycles, investment and return, and ultimately the issue of upgrade and migration.

a. How could the Commission define and quantify spectral efficiency?

Nortel urges against the use of such measures for radio system regulation. The Commission, however, should be cognizant of ITU-R definitions.

b. How could the Commission meaningfully compare efficiencies across different radio services?

As discussed above, Nortel Networks does not believe that the Commission can meaningfully compare efficiencies across different radio services, because of the large number of important factors that would also need to be included, some of which cannot be categorized numerically.

c. Should spectrum efficiency be analyzed subjectively as opposed to quantitatively? If yes, how?

Spectrum efficiency should be an objective *technical* measure. There are other subjective considerations that are important, but these should not be mixed with the measurement of spectrum efficiency. However, as noted above, Nortel does not recommend the use of such measures for radio system regulation.

d. To what extent should any rules, standards or guidelines regarding spectral efficiency take into account the relative scarcity of different uses and different geographic areas as well as the cost of spectrum-conserving technologies?

Nortel Networks believes that any rules, standards or guidelines regarding spectral efficiency should not take into account the relative scarcity of different uses and different geographic areas or the cost of spectrum-conserving technologies. Although all these aspects are very important, they should not be included in any rules. Adopting measures of spectral efficiency as part of the regulations would be counterproductive and decrease industry competition and innovation. If the regulations are set too high, the service availability may be delayed because the technology is unavailable. If the levels are set too low, the competitive advantage of increasing efficiency will be stifled. The regulations would thus need to be changed over the life of the service. It is better for the timescale of this change to be set by the service marketplace, and the serendipity of invention rather than by changing regulations.

Nortel Networks discourages the Commission from developing either simple or more complex measures of efficiency for judging or comparing systems in the regulations. Rather, Nortel encourages rules that promote the return of unused spectrum or the upgrade of in-service systems by leveraging market forces such as competition, auctions and technical innovation.

e. What data and other information is necessary for the Commission to evaluate spectral efficiency?

Nortel believes that the Commission should not use spectral efficiency for technology or service evaluation.

PUBLIC SAFETY COMMUNICATIONS

22. What mechanisms can be developed to ensure the availability of dependable, interoperable and cost-efficient radio-based and other Communications services among local and state public safety and federal government agencies in their use of spectrum for public safety, law enforcement, homeland security, and critical infrastructure protection?

Nortel Networks recommends a reduction in or consolidation of the number of frequency bands (but not a reduction in total available spectrum) currently used by local, state and federal government agencies for these purposes. Different frequency ranges (i.e. VHF and UHF) are needed to support different activities. As was recognized in the December 1999 Public Safety Wireless Network report, having 13 discrete portions of radio spectrum in seven separate groups throughout the VHF and UHF bands is an impediment to effective and interoperable communications.[3] The report cites the lack of affordability of multi-band technology as another result of the current splintered spectrum bands. Nortel Networks believes that a frequency band reduction or consolidation will permit manufacturers to better meet user needs with innovative technologies at reduced cost. Such an approach also supports the goals of the Public Safety Wireless Network's Petition for Rule Making dated September 14, 2001.[4]

23. Recognizing that many of these special needs for communications capacity are highly variable in time and location but generally low in average traffic level, should the Commission and these users consider novel sharing mechanisms for such spectrum that might be appropriate and what criteria (e.g., very high reliability) would need to be used to determine whether such sharing is advisable?

Nortel Networks believes that it may be possible to develop the means that would allow shared use of spectrum between multiple public safety users. Any such sharing would require that in emergency situations some means of assigning precedence of use be incorporated. Sharing of public safety spectrum with other services should not be considered.

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[3] *See Public Safety Wireless Network Spectrum Issues and Analysis Report,* December 1999, at http://www.pswn.gov/.

[4] *See Petition for Rule Making by the Public Safety Wireless Network to Promote Allocation of Spectrum for Public Safety Agencies and Other Matters to Address Communications Needs Through 2010, WT* 96-86, September 14, 2001.

24. How should the amount of spectrum dedicated for the support of public safety and related functions be determined?

In matters of public safety and related functions the amount of spectrum deemed as needed must match the reasonable estimates for public safety's needs. The estimates should not be based on the presumed use by all agencies of a single technology but a broader one that recognizes that one type of technology may not suit every agency's requirements. To the degree that solutions envisioned in Question 23 can be implemented, this can still be an efficient use of spectrum.

INTERNATIONAL ISSUES

25. What role should international/global considerations play in spectrum policy in the United States? And conversely, how should U.S. preparations for regional and international meetings on spectrum policy take into account domestic spectrum policy decisions?

Nortel Networks encourages the U.S. to align spectrum policy with international agreements, and recommends that this principle become the basis for all future spectrum decisions. Because of the role that spectrum plays in enabling the industry, positive and pro-active participation in the creation and implementation of international spectrum policy is vitally important. Domestic policy should guide choices in the international arena, but ultimately domestic policy should not run counter to international agreements.

In the past, international issues have typically only impacted radio emissions that crossed national boundaries. However, today the U.S. industry, including operators, manufacturers and consumers, is part of a "global village" and the international marketplace has an impact in the consideration of domestic spectrum policy decisions.

The United States cannot afford to be an isolated player on the global economic stage. The growth of the country's international trade and influence has created an

environment in which previously limited domestic industries have flourished and embraced the global marketplace. This has resulted in tremendous advances in the domestic standard of living; wages have increased, and the prices of goods and services manufactured in international scale industries have decreased in domestic markets.

The global wireless communications market now serves over one billion people. The universal adoption of wireless services has occurred at an unprecedented rate, and the benefits to society are pervasive and profound. The U.S. wireless industry has been an active participant in this revolution, delivering infrastructure, devices, and services to consumers not just at home, but in every region around the globe.

A thriving domestic marketplace is key to the success of U.S.-based industries in the international market. European and Asian-based suppliers and operators likewise benefit from their local markets to create the scale and scope needed to provide quality services and equipment at a cost that is globally competitive. Markets which are closed, protectionist, or non-standard tend to create anemic localized industries ill-equipped to compete in the larger global arena. Isolationist markets limit the quality, increase the cost of services to consumers, and ultimately impair domestic growth and prosperity.

The current non-aligned spectrum allocations in the U.S. place an enormous burden on our domestic industry. The United States represents only 12.5% of the global subscriber base for wireless communications. In concert with our trade partners in Canada and Mexico, the U.S. share of the international market grows to just 16%. With virtually all of our major international trading partners standardized on established ITU frequency bands, and with allocation of new 3G spectrum already in place, the domestic wireless industry is at a significant disadvantage for the foreseeable future. The decision

to support the domestic market, the international market, or both has a significant impact on investment levels and production capabilities. Non-standard equipment drives up the service cost to U.S. consumers, and limits the pool of potential partners available to create new services and promote leading edge capabilities. Ultimately, it may lead to the decision to either limit growth and focus on local markets, or abandon domestic markets in favor of larger international opportunities. In either case the U.S. public would be ill served by policy decisions that, although not by design, have the effect of being protectionist (for an industry which neither wants or needs protection) and isolationist (for a global partner that would never consciously choose this course).

27. Does the International Telecommunications Union (ITU) spectrum allocation process, as codified in the ITU Radio Regulations, facilitate or impede development of domestic spectrum policies?

While the United States is not aligned with the ITU on, for example, 3G spectrum allocations, this does not mean that the ITU Radio Regulations impede the development of domestic spectrum polices. As indicated in the answer to Question 25, the U.S. industry must strive to be a global player. Both the industry and the regulator must take into account the global context within which they operate.

Any future allocations should be made within the globally accepted frequency bands, so that domestic services are not prevented from aligning with international standards through regulatory exclusion. At the same time, the U.S. has maintained a level of flexibility within its regulatory framework that complements and transcends the ITU's process by, for example, refusing to define the specific technologies to be used for 3G mobile services.

Nortel Networks recommends that the adoption of common spectrum allocations, with enough regulatory flexibility so as to enable international services to be deployed in the domestic market, would best satisfy the country's need for local policy control and the industry's need for access to international markets.

28. Are there ways in which the Commission can or should improve the coordination process with Canada and Mexico? If so, how?

Coordination with all international participants is required. North America is not the dominant market in the global wireless communications industry, and represents a market that cannot successfully support international scale operators and vendors in isolation.

There are a number of areas of where apparent domestic policy has a significant impact on cross-border coordination. These include regulation of unlicensed radio devices and mobile communication systems, in addition to the traditional broadcast services. In these cases, because of the continent-wide scope of the markets, population mobility and the communications networks, domestic policy in one area may eclipse that in others. Nortel encourages the Commission, throughout its policy setting procedures affecting these services, to pro-actively seek consultation from neighbors through the appropriate sectors of the State Department and to include this coordination when revising or setting new regulations.

CONCLUSION

Nortel Networks is very encouraged by the creation of the spectrum task force, is pleased with the comprehensive nature of the questions under review, and looks forward to working with the task force and the Commission on creating a spectrum management policy that will benefit the U.S. economy, the wireless industry and its customers, as well as ensuring the United States' position as a significant player in the global wireless market place.

Respectfully,

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